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PATENT APPLICATION

ATTORNEY DOCKET NO. 200310760-1

IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): John M. Koegler III

Confirmation No.: 8167

Application No.: 10/661,753

Examiner: Lamb, Christopher Ray

Filing Date: 09/12/2003

Group Art Unit: 2627

Title: Optical Disk Modified for Speed and Orientation Tracking

Mail Stop Appeal Brief - Patents  
Commissioner For Patents  
PO Box 1450  
Alexandria, VA 22313-1450

TRANSMITTAL OF REPLY BRIEF

Transmitted herewith is the Reply Brief with respect to the Examiner's Answer mailed on 09/17/08.

This Reply Brief is being filed pursuant to 37 CFR 1.193(b) within two months of the date of the Examiner's Answer.

(Note: Extensions of time are not allowed under 37 CFR 1.136(a))

(Note: Failure to file a Reply Brief will result in dismissal of the Appeal as to the claims made subject to an expressly stated new ground rejection.)

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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:10/661,753	)
Conf. No.	:8167	)
Appellant	:Koegler III et al.	)
Filed	:09/12/2003	)
Title	:Optical Disk Modified for Speed and Orientation Tracking	)
TC / Art Unit	:2627	)
Examiner	:Lamb, Christopher Ray	)
Docket No.	:200310760-1	)
Customer No.	:022879	)

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

**APPELLANTS' REPLY BRIEF**

Sir:

This Reply Brief is presented in opposition to the Examiner's Answer mailed 09/17/2008. Appellants are appealing from the Final Rejection of claims 2-5, 7-10, 12-15, 17, 20-25, and 33-61.

**I. RELATED APPEALS AND INTERFERENCES**

The Examiner is correct that Application 10/661,722 (Attorney Docket 200315232-1) contains similar subject matter and similar grounds of rejection, and has been appealed using similar arguments.

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## II. ARGUMENT

The outline structure of the Appeal Brief will be followed in the Reply Brief, as was done by the Examiner in the Examiner's Answer. However, within the outline structure, what is presented is only the counterarguments in response to the Examiner's arguments. Please refer to Appellants' Appeal Brief for additional arguments and for further detail omitted herein.

**A. Claims 2, 4-5, 8, 10, 20, 23-25, 34-38, 47-56, and 57-58 were improperly rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. patent application publication 2002/0191517 by Honda et al. ("Honda") in view of U.S. patent 6,145,368 to Klein ("Klein") and further in view of U.S. patent 5,119,363 to Satoh et al. ("Satoh").**

1. The cited references, in combination, do not teach or suggest all the limitations of Appellants' independent claim 5.
  - a) **The feature of a first annular ring abutting a second annular ring, and the annular rings proximate a central hub of the disk is absent from the combined references, and modifies the operation of the invention.**

First, the Examiner argues that "rearranging the rings so that they abut does not modify the operation of the claimed disk drive" (Examiner's Answer, p.21). The Examiner focuses his arguments only on the rings, and not on the claimed disk as a whole. The Examiner contends that the "rings are used for speed and/or rotation control, and they work exactly the same whether they abut or not. Moving them does not improve the speed or rotating tracking or change how it works in any way" (Examiner's Answer, p.21).

Appellants disagree. A disk is claimed, not a disk drive. The claimed disk is one on which a visible label can be formed. The disk includes "a label region on the optical disk comprising a writeable material" (claim 5). The annular rings of disk speed features and disk angular orientation features are recited as "located to be readable when writing to the label region", thus interacting with the formation of the visible label (claim 5). The function of the

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disk is to be imprinted with a visible label, not to control speed and/or rotation. Controlling speed or rotation of the disk has no purpose aside from assisting in properly forming the intended visible label in the label region of the disk.

With this proper understanding of the invention as a whole, the Examiner is incorrect in his second argument, that "whether the label region is uninterrupted or not is not an engineering choice, but rather an aesthetic one" (Examiner's Answer, p.21). Appellants contend that the operation is modified by abutting the rings because this changes the size of the continuous, uninterrupted area of the label region compared to two rings that are spaced apart. By maximizing the continuous, uninterrupted area of the label region, more text, graphics and/or image information can be written to it. If the two rings were spaced apart, the label region would be split into different portions, and each portion would be disadvantageously smaller than if the two annular rings abutted. Text or graphics would have to be split, made smaller, or eliminated in order to fit into the two smaller areas. In addition, the spacing between the two rings might be such that no useful text or graphics could be placed between the rings, resulting in completely wasted space. Thus abutting the rings clearly affects the operation of the disk vis-à-vis its purpose which, again, is to support the formation thereon of a visible label. The analogy postulated by the Examiner of "a disc with a dividing line drawn on it" (Examiner's Answer, p.21) is not pertinent; it completely ignores the labeling function of this disk.

The Examiner also argues that the disclosure in Appellants' specification does not provide any disclosure or evidence that one is superior to the other (Examiner's Answer, p.21). Appellants disagree. Figs. 1 and 2 referred to by the Examiner clearly disclose placing labeling text in the label region, and that abutting the rings changes the size of the continuous, uninterrupted area of the label region compared to two rings that are spaced apart such that more text can be placed in the label region.

The Examiner further argues that the advantage of having a larger continuous area would have been obvious to one of ordinary skill at the time of the invention (Examiner's Answer, p.21). Appellants disagree. And even if, arguendo, it were to have been obvious, none of the cited references disclose abutting rings. Without an apparatus capable of properly

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discriminating the features of the abutting rings, as is done during the labeling operation, abutting the rings would render the disk inoperative for the labeling operation. Since none of the cited references disclose abutting rings, neither can they disclose whether a drive with which the disk is labeled has the ability to properly discriminate the two abutting rings, one of disk speed features and the other of disk angular orientation features. For this reason it cannot be concluded that abutting the rings would have been obvious to one of ordinary skill at the time of the invention.

The Examiner also argues that the advantage of a larger continuous area, as disclosed in Appellants' specification, "in and of itself provides further motivation for modifying the prior art in the manner suggested by the Examiner" (Examiner's Answer, p.21-22). This argument once again illustrates how the rejections are riddled with hindsight – here, the Examiner relies on features disclosed only in Appellants' specification – the abutting rings are not taught or suggested by the references – to deem the claims obvious.

3. The Examiner utilized impermissible hindsight to combine the Honda, Klein, and Satoh references.

**a) The Klein reference is non-analogous art with respect to the invention.**

The Examiner contends that the Klein reference is "reasonably pertinent to the specific problem with which the inventor was involved" because it was "directed to tracking the speed and/or angle of a rotating disc" (Examiner's Answer, p.22). Appellants disagree. The Klein reference discloses a rotary encoder used, for example, in "applications such as a wind direction indicator, a rubber position indicator or a joystick" (Klein, Abstract). The rotary encoder would be attached to a shaft of such devices. However, these devices are ones which do not turn "through a complete rotation", as does the rotating disc of Appellant's invention (Klein, Abstract). Since the devices of the Klein reference do not turn through a full rotation, the encoder of the Klein reference does not measure speed of rotation. There is no suggestion in the Klein reference of using the encoder in mechanisms, such as disk drives, in which the device attached to the encoder is rotated through many revolutions. Thus Appellants believe that the Klein reference is non-analogous art.

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In addition, the Examiner appears to rely on the Honda reference in arguing that the Klein reference is analogous art. This is improper. Whether the Klein reference is non-analogous art with respect to Appellants' invention is to be determined based only on the Klein reference itself, not with regard to other extrinsic references.

**b) Because the Examiner has not provided any evidence that resolves or specifically defines the level of ordinary skill in the pertinent art, any assertion as to what would be obvious to a person having ordinary skill in the art is improper.**

The Examiner states that "one of ordinary skill in the field of optical disc drives" is one "who undoubtedly has advanced degrees and/or experience in engineering and/or optics" (Examiner's Answer, p.22-23; emphasis added). Appellants contend that the Examiner's description of the credentials of the person of ordinary skill is improper. What the Examiner describes is a person of extraordinary skill in the art, not a person of ordinary skill. The disk drive and its disk are electro-optical and/or electro-mechanical products. A person of ordinary skill in the design of such products typically has an undergraduate degree, not an advanced degree. See e.g. National Steel Car, Ltd., v. Canadian Pacific Railway, Ltd., 357 F.3d 1319, 69 USPQ2d 1641, 1655 (Fed. Cir. 2004); De Graffenried v. United States, 20 Cl. Ct. 458, 16 USPQ2d 1321, 1334 (1990); Teleflex Inc. v. KSR Int'l Co., 82 USPQ2d 1385, 1396 (S.Ct. 2007). No explanation has provided by the Examiner for why the design of the present invention would require that a person of ordinary skill in the art possess such an advanced degree. However, the Examiner states that he has no doubt that such credentials are possessed by the person of ordinary skill in the art.

As the Federal Circuit has warned, "the level of skill in the art may inform whether the artisan would find a suggestion to combine in the teachings of an exemplar of prior art. Where the level of skill is high, one may assume a keener appreciation of nuances taught by the prior art." McGinley v. Franklin Sports Inc., 262 F.3d 1339, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001). Appellants contend that the Examiner has assigned an improperly high level of education and experience to the person of ordinary skill. Thus even if - arguendo,

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and which Appellants do not concede - the Examiner is correct as to how one who undoubtedly has advanced degrees and/or experience in engineering and/or optics would pick and choose and various features from individual references and then rearrange them to read on the features of Appellants' claims, the Examiner's rejection is improper because of the extraordinarily high level of skill improperly assigned to the person of ordinary skill. Appellants again contend that the entire rejection is riddled with impermissible hindsight, one aspect of which is the Examiner improperly assigning an extraordinarily high level of skill to the person of ordinary skill in the art.

4. The Honda, Klein, and Satoh references are not properly combinable in that the combination would result in an inoperative device, and thus the references teach away from the combination.

The Examiner first argues that Appellant is incorrect in arguing that the Klein reference is rendered inoperable by the teaching of the Satoh reference, because the "rejection is not Klein in view of Satoh, but Honda in view of Klein and further in view of Satoh" (Examiner's Answer, p.23). Appellants disagree. The issue is what one of ordinary skill in the art would do. Appellants believe that when the level of ordinary skill is applied, instead of an extraordinary level of skill, a person of ordinary skill would have recognized the deficiencies of the small disc of the Klein reference and would have been dissuaded from relocating these rings from the outer edge to the inner hub.

The Examiner next argues that the Satoh reference is relied on only to teach "that markings used for speed and/or angle tracking can be aligned around the inner circumference of the disc. This element is so obvious that it hardly even requires Satoh. The rest of Satoh is completely irrelevant" (Examiner's Answer, p.24). Appellants disagree. If the location of the rings around the inner circumference is so obvious, why was the Satoh reference even cited by the Examiner in the rejection? And since it is cited, the inoperativeness of the markings placed around the inner circumference is relevant to the obviousness rejections. As discussed extensively in the Appeal Brief (p.17-18), the groove-like tracks of the Satoh reference would not be accessible if the disk is inverted to access the label side. The person of ordinary skill



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would recognize the inoperativeness from the label side and would be discouraged from using its teachings.

**B. Claims 46-48 were improperly rejected under 35 U.S.C. §103(a), as being unpatentable over U.S. patent application publication 2002/0191517 by Honda et al. ("Honda") in view of U.S. patent 6,145,368 to Klein ("Klein") and further in view of U.S. patent 5,119,363 to Satoh et al. ("Satoh").**

2. The cited references, alone or in combination, do not teach or suggest all the limitations of Appellants' dependent claim 46.
  - a) **The feature that a first radial position (for the ring of disk speed features) is nearer the central hub of the disk than a second radial position (for the ring of disk angular orientation features) is absent from the combined references, and modifies the operation of the invention.**

The Examiner argues that "which ring is inside the other makes no difference in the operation of the invention" (Examiner's Answer, p.25). Appellants disagree. The rings at issue are the data channel ring 104 (which corresponds to the ring of disk speed features) and the index channel ring 102 (which corresponds to the ring of disk angular orientation features) of the Klein reference. The data channel 104 has "a large number of openings (pulses) specifying incremental angular displacements of disk 100" (Klein, col. 1, lines 53-55). If the ring of data channel 104 were to be placed closer to the hub, where the circumference of the ring would be smaller, the number of openings in the ring would be reduced. A fewer number of openings in the 360 degree span of the disk would disadvantageously diminish the resolution and accuracy of angular position measurements. This diminished resolution would adversely impact the image quality of the images formed on the disk by the disk drive. For this reason, which ring is inside the other does affect the operation of the invention.

The Examiner further argues that there are only two possibilities – "one inside the other or vice versa" – for the arrangement of the rings (Examiner's Answer, p.26).



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Appellants disagree, as argued in the Appeal Brief. But even if there were, *arguendo*, only two possibilities, one of ordinary skill would not choose the one which provides poorer resolution and accuracy than the other.

**E. Claim 33 was improperly rejected under 35 U.S.C. §103(a), as being unpatentable over U.S. patent application publication 2002/0191517 by Honda et al. ("Honda") in view of U.S. patent 6,145,368 to Klein ("Klein"), further in view of U.S. patent 5,119,363 to Satoh et al. ("Satoh"), and further in view of U.S. patent 5,107,107 to Osborne ("Osborne").**

2. The cited references, alone or in combination, do not teach or suggest all the limitations of Appellants' dependent claim 33.

a) **The feature wherein the first annular ring is configured for reading by an encoder and the second annular ring is configured for reading by an OPU is absent from the combined references.**

The Examiner contends that "Honda in view of Klein, and further in view of Satoh, discloses a disc drive that uses encoders to track both rings of features. Osborne discloses that an optical pickup of the type used in disc drives can do everything an encoder can do, but better. Therefore, given the teaching of Osborne it's definitely obvious to replace an encoder with an optical pickup" (Examiner's Answer, p.27). Appellants disagree.

First, the Osborne reference does not teach that an optical pickup can do everything better than an encoder. The Osborne reference is directed only to encoders. The reference compares two different types of encoders. One is the conventional encoder, which uses a disk with "tiny transparent slits" (Osborne, col. 11, ln. 48-51). The other encoder is the new encoder that is the subject of the Osborne reference. The difference between the two encoders is that, instead of using a disk with slits, the new encoder uses a type of optical disk within it to implement the encoder.

However, the optical disk used in the Osborne encoder is quite different from a standard optical disk used in a disk drive. A standard optical disk would not work in the

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encoder of the Osborne reference, for a large number of reasons (see col. 12, ln. 25 – col. 13, ln. 5). So instead, the Osborne reference uses “a non-pregrooved Laser Optical Disk (LOD) having concentric tracks” of a particular format having pits sized and located differently from those of a standard disk (Osborne, col. 13, ln. 6 – col. 14, ln. 2). In addition, a different pickup and tracking approach from that used in an optical disk drive, including the use of two heads, is used in reading the disk of the new encoder (col. 13, ln. 12-16; col. 14, ln. 3-30). Furthermore, the new encoder is actively self-aligning such that the plural heads maintain their view of the track on the disk (Abstract). If the heads were to move their positions in order to perform some other operation, they could not maintain their view of the track and would not be actively self-aligning.

All of these aspects of the optical disk and the multiple read heads of the Osborne reference are considerably different from the optical disk, and the disk drive OPU used to read it, of the present invention. Furthermore, the term “OPU” is a well-known term of art in optical disk drives, and the characteristics and features of an OPU are considerably different from the read heads of the Osborne reference. Perhaps one of extraordinary skill in the art might be able to make the appropriate modifications needed to recombine them with the puzzle pieces chosen from the Honda, Klein, and Satoh references, but Appellants contend that one of ordinary skill in the art would not. As such, it cannot be obvious to replace an encoder with an optical pickup to read the second annular ring of features on the disk – particular an optical pickup that is also used to write to the label region and thus cannot maintain its view of the second annular ring of features at all times.

The Examiner also contends that “Osborne discloses that both encoders and pickups can be used for the same purpose” (Examiner’s Answer, p.28). Appellants disagree. This is incorrect for similar reasons: the Osborne reference discloses a new encoder that is different from a conventional encoder. However, the product of the Osborne reference is still an encoder. What the Osborne reference discloses is that a conventional encoder that uses a disk with slits can be replaced by a new encoder that uses a type of optical disk. But this is not at all the same thing as using an encoder and a pickup for the same purpose.

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3. The Honda, Klein, Satoh, and Osborne references are not properly combinable in that there is no articulated reason with some rational underpinning to modify or combine the reference teachings because the reason articulated by the Examiner would not lead to, but rather teach away from, the combination of features recited in claim 33.

As a preliminary matter, the Examiner incorrectly asserts that "Applicant admits that Osborne does disclose a pickup is better than an encoder" (Examiner's Answer, p.28). First, as explained above, Osborne does not even disclose that both encoders and pickups can be used for the same purpose, and thus an assertion that one is better than the other is an apples-to-oranges comparison. Second, Appellants do not make any such admission. The Appeal Brief states, in one place: "To whatever extent, if any, that the Osborne reference may be fairly considered as teaching that reading the second ring with an OPU avoids the weaknesses of reading them with an encoder ..." (Appeal Brief, p.25; emphasis added). The Appeal Brief states, in another place: "Furthermore, assuming arguendo that the Examiner is correct that the Osborne reference teaches that an OPU overcomes weaknesses of an encoder in reading the annular rings ..." (Appeal Brief, p.26; emphasis added). It is clear that the Appellants were not making any admission as to what the Osborne reference teaches, but rather were arguing that, even if the Osborne reference did teach this, the Examiner's rejection would still be improper.

Appellants contend that the Osborne reference fails to teach or suggest that it is better to read a ring on an optical disk with a pickup rather than an encoder. The device disclosed by the Osborne reference is an improved encoder. If anything, the Osborne reference teaches or suggests using its improved encoder instead of a conventional encoder. It does not teach or suggest using a pickup instead of an encoder to read the ring of disk angular orientation features. It follows that the articulated reason lacks a rational underpinning because there is no teaching or suggestion that replacing an encoder with a pickup would be better.

In addition, even if the Examiner were correct in contending that Osborne discloses that a pickup is better than an encoder – which, as just explained, Appellants do not concede or admit – the particular configuration recited in claim 33 is arrived at only by stating that "it

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is equally obvious to replace just one of them: even replacing one would still provide an improvement over the base reference, so there is still motivation to do it" (Examiner's Answer, p.28-29). Appellants do not believe that this reason has the required rational underpinning. It appears as if the only reason is impermissible hindsight – that this is the configuration recited in the claim.

4. There would be no reasonable expectation of success in combining the Honda, Klein, Satoh, and Osborne references in that the OPU would be inoperative either to read the second annular ring of features on the optical disk or to mark the writeable material in the label region of the optical disk

As explained above, the disk of the Osborne reference, and the pickup and tracking approach of the Osborne reference, are quite different from those of an optical disk drive. If the optical disk of the combined Honda, Klein, and Satoh references were to be inserted in a disk drive having the pickup, and using the tracking approach, of the Osborne reference, it is quite unlikely that the disk could be read or labeled.

The Examiner also contends that "if the pickup is not self-aligning, the combination would work perfectly. This is evidenced by the fact that it is essentially identical to Applicant's disclosed invention" (Examiner's Answer, p.29). Here the Examiner apparently is relying on the Appellants' disclosure to teach or suggest something that is contrary to the explicit teaching of the Osborne reference. The Osborne reference not only maintains its view of the track on the disk at all times, but relies on doing so in order to operate as an encoder properly. Only the Appellants' disclosure teaches that the OPU is sometimes used to read the second angular ring of features and at other times to mark the writeable material in the label region. As such, it is yet another example of how heavily the present rejection relies on impermissible hindsight to combine and modify the teachings of the various cited references in order to reject Appellants' claims.

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### III. CONCLUSION

Appellants contend that claims 2-5, 7-10, 12-15, 17, 20-25, and 33-61 were improperly rejected because the applied references, alone or in combination, do not teach or suggest all of Appellants' claim limitations, there is no articulated reason with some rational underpinning to modify or combine reference teachings, and/or there is no reasonable expectation of success in combining the references.

Each of these reasons alone distinguishes Appellants' claims from the cited references and makes Appellants' claims non-obvious in light of the cited references.

Overruling of the Examiner's rejections of claims 2-5, 7-10, 12-15, 17, 20-25, and 33-61 is respectfully requested.

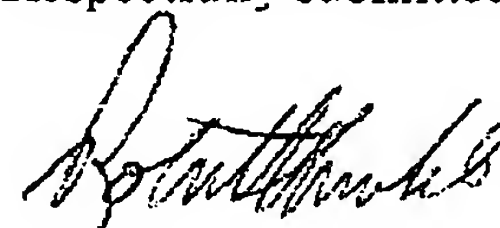
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